

## BOAT COVER

1        BACKGROUND OF THE INVENTION

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3        The present invention relates to a boat cover and  
4 especially to a boat cover which covers a boat when  
5 the boat is hoisted with a boat hoist.

6        In the past, it has been common to provide boat  
7 decks and boat houses for the maintaining of boats  
8 when the boats are not being used. Typically, such  
9 boat docks have an open framework having a roof  
10 mounted thereover and may be provided with sidewalls  
11 so that the boat can be driven directly into the boat  
12 house. It is common to provide a boat hoist or  
13 winching mechanism for attaching ropes or cables to  
14 the boat and then elevating the boat out of the water  
15 supported on the framework beneath the roof. It is  
16 also old to provide canvas or flexible covers for a  
17 boat so that the cover can be drawn over the top of  
18 the boat and held therearound with draw ropes at the  
19 peripheral edge thereof for retaining the lower edge  
20 portion of the canvas in abutting relationship to the  
21 sides of the boat.

22       Boat covers typically cover boats when they are  
23 out of water, such as on trailers, and even when they  
24 are in the water and moored for extended periods of  
25 time to protect the tops of the boats. Some boat  
26 owners also cover their boats when they are not going  
27 to be used for a period of time even though they are  
28 kept within the boat house and elevated above the  
29 water under the roof of the boat house. This is to  
30 prevent an accumulation of dirt, moisture, and the

1 like when the boat is not going to be used for any  
2 extended period of time. However, this becomes a  
3 difficult operation to attach and remove the boat  
4 cover since the boat is being suspended from ropes or  
5 cables during the time the boat is being covered. The  
6 absence of a separate cover over the boat will allow  
7 dirt, insects, and the like to accumulate on the  
8 interior of the boat and sun damage to the outside and  
9 inside of the boat. The present invention is directed  
10 towards a boat cover which automatically covers the  
11 boat whenever the boat is hoisted therebeneath and  
12 automatically raises the boat cover when the boat  
13 hoist lowers the boat into the water.

14 In the U.S. patent to Downer, No. 4,019,212, a  
15 boat cover apparatus is provided which provides a  
16 manual lift system mounted to a frame for lifting a  
17 boat above the water and includes cables for attaching  
18 and lifting the boat. A boat cover is attached to a  
19 specially designed frame shaped to fit over the sides  
20 of the boat and is supported from flexible cords or  
21 cables and has a hand wench so the cover can be  
22 lowered or raised manually after the boat has been  
23 lifted. Thus, the boat is manually lifted with a  
24 manual boat hoist and then, in a separate operation,  
25 a frame having a cover attached is lowered with a  
26 separate hand wench down over the top of the boat.

27 In the Osborne patent, No. 5,269,332, a  
28 retractable protective cover for boats, cars, and the  
29 like is operated with a manual wench pulling a cover  
30 through an elongated tube where it is retracted and  
31 extended for covering a car. The Faber patent, No.

1 5,058,946, is a hinged trailer boat cover which has a  
2 rigid boat cover mounted to a trailer for covering the  
3 boat when towing the boat on the trailer or for  
4 storage on the trailer. The Lackovic patent, No.  
5 5,027,739, is a demountable cover for a boat hatchway  
6 which swings a cover on a supporting arm. The Enright  
7 patent, No. 524,137, is a portable awning for vessels  
8 supported from a boom arm. The McGoldrick patent, No.  
9 1,134,630, is a life boat and launching mechanism  
10 therefor.

11 A boat hoist and cover assembly apparatus and  
12 method are taught in my prior U.S. Patent No.  
13 5,709,501 for a Boat Hoist Cover Assembly. This prior  
14 patent uses a boat hoist having a rotatable lift shaft  
15 having a plurality of ropes or cables coiled  
16 therearound in one direction of rotation and extending  
17 therefrom for removably coupling to a boat for lifting  
18 a boat by the rotation of the hoist lift shaft. A  
19 boat cover has a plurality of cables or ropes attached  
20 thereto and coiled around the boat hoist lift shaft in  
21 a second direction of rotation from that of the boat  
22 hoist ropes to thereby lower the boat cover when  
23 hoisting the boat and to raise the boat cover when  
24 lowering the boat so that a boat cover covers a boat  
25 whenever the boat is hoisted by the boat hoist. The  
26 method uses the selected boat hoist and cover assembly  
27 and rotates the boat hoist shaft to lift an attached  
28 boat while lowering the boat cover onto the boat.

29 In contrast, the present invention provides a  
30 boat cover that lowers onto the boat when lifting the  
31 boat with a hoist and raises the boat cover when

1 lowering the boat to avoid the complexities of  
2 covering a boat in a boat house when storing the boat.  
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4 SUMMARY OF THE INVENTION

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6 A boat cover for a boat hoist includes a  
7 framework shaped to be attached to a plurality of  
8 pilings of a boat hoist above or beneath the boat  
9 hoist. A fabric boat cover has a top portion attached  
10 over the framework and a side portion extending over  
11 the sides of the framework. A plurality of cover  
12 frame members are attached to the fabric boat cover  
13 side portion in a spaced relationship to each other.  
14 A boat cover raising and lowering mechanism raises and  
15 lowers the cover side portion and has a rotatable  
16 shaft operatively rotated by a motor connected  
17 thereto. The shaft is attached to the framework  
18 beneath the fabric boat cover top portion and has a  
19 plurality of winding cords connecting at one end to  
20 the shaft for rotation therearound upon rotation of  
21 the shaft. Each winding cord is connected at the  
22 other end thereof to the bottom one of a plurality of  
23 cover frame members attached to the fabric cover side  
24 portion. At least one of the winding cords connects  
25 to a plurality of lifting cords which are in turn  
26 connected to the bottom cover frame member so that  
27 rotating the shaft in one direction will wind the  
28 plurality of winding cords thereon to raise the boat  
29 cover side portion from around a boat and rotating the  
30 shaft in the other direction will unwind the winding  
31 cords to lower the boat cover side portion along the

1       sides of a boat hoisted therein. A plurality of  
2       winding cords includes a first winding cord wrapped  
3       around the shaft in one direction and a second winding  
4       cord wrapped around the shaft in a second direction  
5       whereby rotation of the shaft will wind or unwind the  
6       first and second winding cords simultaneously. The  
7       boat cover framework includes a perimeter frame  
8       portion and at least one cross frame member having the  
9       shaft attached thereto between a pair of journals. A  
10      plurality of pulleys direct the winding cord and  
11      lifting cords for connecting to the bottom cover frame  
12      member. The frame can be made out of metal or polymer  
13      pipe members while the fabric cover can be a generally  
14      waterproof polymer fabric.

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16      BRIEF DESCRIPTION OF THE DRAWINGS

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18       Other objects, features, and advantages of the  
19       present invention will be apparent from the written  
20       description and the drawings in which:

21       Figure 1 is a cut away perspective of a boat  
22       cover for a boat hoist in accordance with the present  
23       invention having the cover partially lowered;

24       Figure 2 is a perspective view of the boat cover  
25       for a boat hoist in accordance with claim 1 having the  
26       cover lowered; and

27       Figure 3 is a cutaway perspective of a boat cover  
28       of Figure 1 having alternative attachments for the  
29       pilings.

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1        DESCRIPTION OF THE PREFERRED EMBODIMENTS  
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3        Referring to the drawings of Figures 1 through 3,  
4        a boat cover 10 is illustrated having a portion of the  
5        covering fabric 11 cut away to show the operating  
6        mechanism of the boat cover. The boat cover would  
7        typically be mounted beneath a boat hoist or in a boat  
8        dock and can have separate pilings 12 for mounting the  
9        boat cover 10 which can also be mounted to the  
10      existing pilings for supporting the boat hoist or  
11      dock. Framework 13 has a perimeter frame 14 which can  
12      be made of metal or polymer pipe and has a plurality  
13      of cross frame members 15, 16, and 17, each of which  
14      supports a center vertically extending support 18  
15      attached to a center frame member 20. A plurality of  
16      frame attaching brackets 21 are each attached to one  
17      of the pilings 12 and is shaped to cradle the  
18      perimeter frame 14 therein on at least four points, as  
19      illustrated in Figures 1 and 2. Fabric 11 extends over  
20      the top of the framework 13 and around the sides of  
21      the perimeter frame 14. The side extending fabric 22  
22      has attached to the bottom thereof a weighted cover  
23      frame member 23 which may also be made of a plastic or  
24      metal pipe. A plurality of additional cover frame  
25      members 24 allow the side cover 22 to be raised or  
26      lowered in an orderly manner while stiffening the side  
27      cover. The cross member 15 has a boat cover raising  
28      and lowering mechanism 25 which acts like a wench  
29      having a rotating shaft 26 supporting between a pair  
30      of journals 27 and 28, each of which are attached to  
31      the cross frame member 15. An electric motor 30,

1 having an electric cord 31 extending therefrom, is  
2 attached to the journal 27 and is operatively attached  
3 to the shaft 26. The rotating shaft 26 has a winding  
4 cord 32 to which winds partially therearound in one  
5 direction and extends from the top of the shaft 26.  
6 A winding cord 33 is also coiled around the shaft 26  
7 but coiled in the opposite direction from cord 32. It  
8 extends from the bottom of the shaft 26 such that when  
9 the electric motor 30 rotates the shaft 26 in one  
10 direction, both coiled cords 32 and 33 will unwind  
11 simultaneously and when the motor rotates the shaft 26  
12 in the opposite direction, both will be wound back  
13 onto the shaft 26. The winding cord 32 extends around  
14 a pulley 34 and is attached to an eyelet 35 attached  
15 to the boat cover frame 23 so that when the shaft 26  
16 is rotated in either direction, it will raise or lower  
17 the cord 32 to raise or lower one end of the frame  
18 23. The winding cord 33 is attached to a ring 36  
19 which has a plurality of lifting cords 37 attached  
20 thereto. Four of the lifting cords 37 are wrapped  
21 around four pulleys 38 which in turn directs two of  
22 the cover lifting cords 37 around a pair of pulleys 40  
23 and 41 on one side thereof and around a pair of  
24 pulleys 42 and 43 on the opposite side thereof. The  
25 pulleys 40 and 41 direct the cord 37 around a pair of  
26 pulleys 44 and 45 which in turn direct their  
27 respective cords to an eye 46 attached to the cover  
28 frame member 23. The cords 37 that extend through the  
29 pulleys 42 and 43 similarly pass through pulleys 47  
30 and 48 which in turn are directed to a pair of eyelets  
31 50 attached to the bottom cover frame member 23. One

1 final cord 37 extends over a pulley 51 and over a  
2 pulley 52 to direct a cord to an eyelet 53 attached to  
3 the perimeter frame 23.

4 Thus, when the winding cord 33 is wrapped on the  
5 shaft 26, it simultaneously pulls all of the cords 37  
6 which are then directed through a series of pulleys to  
7 the perimeter frame 23 which are then simultaneously  
8 lifted by the pulling of the one cord 33. Inasmuch as  
9 the winding cords 32 and 33 are being wrapped and  
10 unwrapped simultaneously from the shaft 26, the boat  
11 cover frame member 23 has been raised or lowered  
12 simultaneously to raise or lower the side of the boat  
13 cover 22. When a boat is pulled between the pilings  
14 12 and the water 54, a hoist located above the boat  
15 cover 10 can have boat lifting cables extending  
16 through the top of the cover fabric 11 to attach to  
17 the boat for lifting the boat up into the cover and  
18 the cover sides 22 lowered around the boat so that the  
19 boat is not only lifted from the water 54 but is  
20 covered over the top and all sides by the cover 11 and  
21 side cover 22. The side cover 22 can be raised or  
22 lowered by switching the electric motor 30 in a  
23 forward or reverse direction as desired and can be  
24 actuated by a micro switch 59 any time the boat is  
25 raised by the boat hoist. A regular manually operated  
26 switch may also be used as well as a wireless remote  
27 as desired.

28 Figure 3 illustrates the boat cover of Figures 1  
29 and 2 in which the brackets 21 of Figures 1 and 2 have  
30 been replaced by supporting rods 60 attached with  
31 brackets 61 to the top of the pilings 12. The support

1        rods 60 and 62 each having a cable 63 extending from  
2        each end thereof and attached to the perimeter frame  
3        14 of the frame 13 of the boat cover 10. The boat  
4        cover then operates in the same manner. The boat  
5        covers of Figures 1 through 3 can be mounted to  
6        existing pilings of a hoist or boat dock or can be  
7        mounted to separate pilings specifically put in for  
8        the boat cover 10.

9        It should be clear at this point that the present  
10      invention illustrates a boat cover for use with a boat  
11      hoist or dock which can be automatically actuated to  
12      raise and lower the sides of the boat cover and in  
13      which the boat cover operating mechanism is positioned  
14      below the top of the boat cover where it is protected  
15      from the elements. However, the present invention  
16      should not be construed as limited to the forms shown  
17      which are to be considered illustrative rather than  
18      restrictive.